
New Combinations and a New Name in *Syzygium* (Myrtaceae) from Madagascar and the Comoro Islands

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ABSTRACT. Acceptance of current generic concepts in Myrtaceae results in the proposal of 14 new combinations and 1 new name in *Syzygium* Gaertner. Those taxa from Madagascar and Mayotte originally described in *Eugenia* L. that have terminal inflorescences and calyptrate corollas should be accommodated within *Syzygium*. Complete synonymy and typification are given for all accepted taxa.

RÉSUMÉ. Les nouveaux concepts génériques chez les Myrtaceae nous amènent à proposer 14 combinaisons nouvelles et un nouveau nom dans le genre *Syzygium* Gaertner. Ces taxa de Madagascar et Mayotte, originellement décrits dans *Eugenia* L. et qui possèdent des inflorescences terminales et des corolles en calypstre, doivent être placés dans le genre *Syzygium*. La synonymie complète et la typification sont données pour tous les taxa acceptés.

Key words: Comoro Islands, *Eugenia*, Madagascar, Myrtaceae, *Syzygium*.

In both his treatment of Myrtaceae for the *Flore de Madagascar et des Comores*, as well as its precursor in which new taxa were described, Perrier de la Bâthie (1952, 1953) adopted the broad view of *Eugenia* L., including those taxa with terminal inflorescences and calyptrate corollas, which he ascribed to "Section *Syzygium*." More recent studies (Schmid, 1972) have definitively shown that numerous characters, including both gross floral morphological as well as anatomical characters, can be utilized to separate *Eugenia* from *Syzygium* Gaertner. This concept of two distinct genera is now generally accepted in modern treatments of the Myrtaceae, as evidenced by numerous accounts for regional floras, including *Flora Zambesiaca* (White, 1977), *Flore des Mascareignes* (Scott, 1990), and *Flore des Seychelles* (Friedmann, 1994). Thus, in

line with current generic concepts, and to conform with the adjacent regional floristic treatments cited above, we propose the following new combinations and a replacement name for Malagasy *Syzygium*.

Comprised of over 500 species, the genus *Syzygium* is strictly Old World with a center of diversity in the Australasian region. Within Myrtaceae, it is allied to a group of Australasian–Malesian genera that together form the *Acmena* Alliance (Briggs & Johnson, 1979), sharing predominantly terminal inflorescences, the absence of standard myrtaceous hairs, and a mostly glabrous condition. The wood anatomy and unitegmatic ovules of *Syzygium* argue against a close relationship with *Eugenia* s. str. (Johnson & Briggs, 1984). Apart from the *Syzygium* taxa enumerated below, the remaining native Malagasy Myrtaceae all belong to *Eugenia* s. str., a genus of ca. 1000 mostly New World species. With the transfer of several species originally described in *Myrtus* L. (Scott, 1980), and the description of several new species (Miller, 2000), *Eugenia* now numbers ca. 39 species in Madagascar and the Comoro Islands. Although not all *Syzygium* species possess a calyptrate corolla, all Malagasy *Syzygium* can be distinguished from *Eugenia* by their calyptrate corollas and terminal (never cauliflorous) inflorescences, versus free petals and axillary or cauliflorous (never terminal) inflorescences in *Eugenia*.

Syzygium aurantiacum (H. Perrier) J.-N. Labat & G. E. Schatz, comb. nov. Basionym: *Eugenia aurantiaca* H. Perrier, Mém. Inst. Sci. Madagascar, Sér. B, Biol. Vég. 4(2): 190. 1952. TYPE: Madagascar. Bords de la Lokoho (N.E.), 1000 m, 2 Jan. 1949, G. Cours 3428 (holotype, P).

This species is only known from the type specimen collected in northeastern Madagascar, within or near the Marojejy Strict Nature Reserve.

Syzygium baronii J.-N. Labat & G. E. Schatz, nom. nov. Replaced name: *Eugenia cyclophylla* Baker, J. Bot. 20: 111. 1882; non *Eugenia cyclophylla* Berg, in Martius, Fl. Bras. 14(1): 287. 1857; non *Eugenia cyclophylla* Thwaites ex Duthie, in Hooker f., Fl. Brit. Ind. 2: 494. 1878. TYPE: Madagascar. Central, sine loc., *R. Baron* 219 (holotype, K).

Eugenia vacciniifolia Baker, J. Linn. Soc., Bot. 20: 145. 1883. Syn. nov. Non *Syzygium vacciniifolium* Merrill, Philipp. J. Sci. 79: 420. 1951. TYPE: Madagascar. Central, sine loc., *R. Baron* 1919 (holotype, K; isotype, P).

Eugenia loiseleuroides Baker, J. Linn. Soc., Bot. 21: 341. 1884. Syn. nov. TYPE: Madagascar. Sine loc., *R. Baron* 2641 (holotype, K; isotype, P).

Perrier de la Bâthie (1952, 1953) used the name *E. vacciniifolia* Baker for this species, perhaps because he was aware that the name *Eugenia cyclophylla* had been used previously by two other authors before Baker. A nomen novum is now necessary because *Syzygium vacciniifolium* Merrill already exists. *Syzygium baronii* is distributed in humid montane forest of the Imerina region of the Central High Plateau, and is apparently common in the Ankaratra Massif between 1600 and 1800 m altitude.

Syzygium bernieri (Drake) J.-N. Labat & G. E. Schatz, comb. nov. Basionym: *Eugenia bernieri* Drake (as "*Bernieri*"), Bull. Mens. Soc. Linn. Paris 2: 1221. 1896. TYPE: Madagascar. Ste.-Marie, 1834, *A. C. J. Bernier* 195 (as "*155*") (lectotype, designated by Perrier de la Bâthie (1952), P; isotype, P).

Eugenia chapelieri Drake (as "*Chapelieri*"), Bull. Mens. Soc. Linn. Paris 2: 1222. 1896. Syn. nov. TYPE: Madagascar. [Environs de Tamatave], *L. A. Chapelier* s.n. (holotype, P; isotype, P).

Eugenia maroana Aug. DC., Bull. Herb. Boissier, Sér. 2, 1(6): 573. 1901. Syn. nov. TYPE: Madagascar. Environs de Maroantsetra, 1897, *A. Mocquerys* 348 (holotype, G).

This species varies considerably throughout its range (mainly in leaf size and shape and flower size), and, like *S. emirnense*, requires a thorough systematic revision prior to the recognition of additional specific or infraspecific taxa. Therefore, the three varieties (*Eugenia bernieri* var. *oblanceolata*, *Eugenia bernieri* var. *latericolor*, *Eugenia bernieri* var. *tampinensis*) described by Perrier de la Bâthie (1952), which moreover are invalid in lacking Latin diagnoses, are not recognized here. *Syzygium bernieri* is widely distributed in the humid forest along the east coast of Madagascar as well as the Sam-

birano region including Nosy Bé, from sea level to ca. 1000 m altitude, but more common at the lower elevations.

Syzygium condensatum (Baker) J.-N. Labat & G. E. Schatz, comb. nov. Basionym: *Eugenia condensata* Baker, J. Bot. 20: 112. 1882. TYPE: Madagascar. Central, Betsileo-land, *R. Baron* 237 (holotype, K; isotype, P).

Syzygium condensatum, *S. micropodum*, and the very polymorphic species *S. emirnense* together constitute a difficult complex of species that requires a thorough systematic revision. We provisionally adopt Perrier de la Bâthie's concept of specific limits within the complex, but exclude *E. aggregata* from synonymy under *S. condensatum*. As treated below, further study of the lectotype of *E. aggregata* (*R. Baron* 4917) clearly indicates that it is conspecific with *S. phillyreifolium*. *Syzygium condensatum* is distributed in humid montane forest on the Central High Plateau around Antananarivo, as well as in the Andapa region including the Marojejy Strict Nature Reserve.

Syzygium danguyanum (H. Perrier) J.-N. Labat & G. E. Schatz, comb. nov. Basionym: *Eugenia danguyana* H. Perrier (as "*Danguyana*"), Mém. Inst. Sci. Madagascar, Sér. B, Biol. Vég. 4(2): 195. 1952. TYPE: Madagascar. Ambodimanga à Antanambao [near Lac Alaotra], 1200 m, 11 Oct. 1945, *G. Cours* 2800 (lectotype, designated here, P).

This species is known from relatively few collections in low- to mid-elevation humid forest up to 1200 m altitude, from Farafangana to the Masoala Peninsula as far west as Lac Alaotra. The variety *Eugenia danguyana* var. *rotranala*, invalidly described by Perrier de la Bâthie (1952), is not recognized here.

Syzygium emirnense (Baker) J.-N. Labat & G. E. Schatz, comb. nov. Basionym: *Eugenia emirnis* Baker, J. Linn. Soc., Bot. 20: 145. 1883. TYPE: Madagascar. Central, sine loc., *R. Baron* 1076 (lectotype, designated here, K; isotype, P).

Eugenia cuneifolia Bojer ex Baker, J. Linn. Soc., Bot. 20: 144. 1883. Syn. nov. *Eugenia emirnis* f. *cuneifolia* (Bojer ex Baker) H. Perrier, Mém. Inst. Sci. Madagascar, Sér. B, Biol. Vég. 4(2): 187. 1952. TYPE: Madagascar. Central, sine loc., *R. Baron* 1254 (lectotype, designated by Perrier de la Bâthie (1952), K; isotype, P).

Eugenia richardiana Cordemoy, Fl. Ile Réunion: 430. 1895. Syn. nov. *Syzygium richardianum* (Cordemoy)

Guého & A. J. Scott, Kew Bull. 34: 494. 1980. TYPE: Réunion. Versants des montagnes, J. M. C. Richard s.n. (holotype, MARS).

Eugenia emirnensis var. *elongata* Hochreutiner, Annuaire Conserv. Jard. Bot. Genève 11 and 12: 76. 1908. Syn. nov. TYPE: Madagascar. District of Vatondranjato, 21 Feb. 1904, J. Guillot 101 (holotype, G; isotype, K).

Eugenia condensata Baker var. *thouvenotii* P. Danguy ex Lecomte, Les Bois de la forêt d'Analamazotra: 106. 1922. Syn. nov. TYPE: Madagascar. Analamazotra, 1919, E. Thouvenot 124 (holotype, P; isotypes, MO, P).

After examination of the abundant material available, it appears that the considerable variability in both vegetative and reproductive characters may correspond to habitat differences and thus local ecological specialization. Comprehensive field studies are needed to clarify the patterns of variation prior to possible recognition of additional taxa (see also notes under *S. condensatum* and *S. micropodum*). *Eugenia richardiana*, which is based on a J. M. C. Richard specimen that is probably incorrectly indicated as having been collected in Réunion, corresponds to *S. emirnense* (see the editor's note in Scott, 1990: 29). In its broad conception as here accepted, *S. emirnense* is widely distributed and common throughout all of the humid to montane forest of eastern and central Madagascar. The variety *Eugenia emirnensis* var. *submaritima* and forma *Eugenia emirnensis* f. *podocarpifolia* invalidly described by Perrier de la Bâthie (1952) are here considered to lie within the overall variability of *Syzygium emirnense*.

Syzygium humblotii (H. Perrier) J.-N. Labat & G. E. Schatz, comb. nov. Basionym: *Eugenia humblotii* H. Perrier (as "*Humblotii*"), Mém. Inst. Sci. Madagascar, Sér. B, Biol. Vég. 4(2): 193. 1952. TYPE: Comores. Mayotte, Forêt de Combani, 19 Oct. 1884, L. Humblot 1329 [incorrectly cited by Perrier de la Bâthie as "Madagascar, Nossivé, L. Humblot 329 vel 1329?"] (holotype, P; isotype, P).

This species, which is known only from the type specimen, is endemic to the island of Mayotte in the Comoros Archipelago. In the protologue of *E. humblotii*, Perrier de la Bâthie (1952) cited the type specimen as "*Humblot 329 vel 1329?*," indicating the locality for the collection as Nossivé in Madagascar. Examination of Humblot's field books at P reveals that *Humblot 329* from Madagascar represents "*Psychotria lantzii*," a Drake manuscript name that was later published as *Cremocarpon lantzii* Bremekamp (Rubiaceae). Humblot's collections from the Comoros were also numbered beginning

with 1, but then subsequently renumbered at P to avoid confusion with his Malagasy collections (see Dorr, 1997). Thus, his Mayotte collection from October 1884 bearing field number 329 (but inexplicably numbered 2329 in the second of three Comoros field books at P) was then renumbered 1329, and is therefore the correct citation for the type of *E. humblotii*.

Syzygium lugubre (H. Perrier) J.-N. Labat & G. E. Schatz, comb. nov. Basionym: *Eugenia lugubris* H. Perrier, Mém. Inst. Sci. Madagascar, Sér. B, Biol. Vég. 4(2): 187. 1952. TYPE: Madagascar. Forêt d'Analamazotra, 800 m, Feb. 1912, H. Perrier de la Bâthie 6487 (holotype, P).

This species is distributed in humid forests of central eastern Madagascar at mid-elevations, from the regions of Andramasina and Tsinjoarivo to the southeast of Antananarivo to the Lac Alaotra region. The forma *Eugenia phillyreaefolia* f. *obscurifolia* invalidly described by Perrier de la Bâthie (1952) and then later presented as a variety (Perrier de la Bâthie, 1953), represented by *M. Louvel 87*, is here considered to belong to *Syzygium lugubre*.

Syzygium micropodum (Baker) J.-N. Labat & G. E. Schatz, comb. nov. Basionym: *Eugenia micropoda* Baker, J. Linn. Soc., Bot. 20: 143. 1883. TYPE: Madagascar. Central, sine loc., R. Baron 388 (holotype, K; isotype, P).

This species is widely distributed in mid-elevation to montane humid forest, mainly above 1000 m altitude, from Andohahela to Tsaratanana including the higher elevations of the Masoala Peninsula. Plants collected in the littoral forest on sand along the eastern Malagasy coast between Ft. Dauphin and Ambila-Lemaitso correspond to the specimens cited by Perrier de la Bâthie (1952) (*H. Perrier de la Bâthie 14299*; *E. Ursch 107*) under invalidly described *Eugenia micropoda* var. *littoralis* and may represent a distinct taxon. Specimens representing the forma *Eugenia emirnensis* f. *subrotundifolia*, invalidly described by Perrier de la Bâthie (1952), are here placed under *Syzygium micropodum*. Further detailed studies are necessary before the naming of additional taxa within this species complex that includes *S. condensatum*, *S. emirnense*, and *S. micropodum*.

Syzygium onivense (H. Perrier) J.-N. Labat & G. E. Schatz, comb. nov. Basionym: *Eugenia onivensis* H. Perrier, Mém. Inst. Sci. Madagascar, Sér. B, Biol. Vég. 4(2): 188. 1952. TYPE: Madagascar. Environs du confluent de l'Onive et du Mangoro, 600 m, Feb. 1926, *H. Perrier de la Bâthie* 16990 (holotype, P).

This species is known from relatively few collections in mid-elevation humid forest between 600 and 1100 m altitude from the Tanala region to Lac Alaotra.

Syzygium parkeri (Baker) J.-N. Labat & G. E. Schatz, comb. nov. Basionym: *Eugenia parkeri* Baker (as "*Parkeri*"), J. Linn. Soc., Bot. 20: 144. 1883. TYPE: Madagascar. Central, sine loc., *G. W. Parker s.n.* (holotype, K).

Eugenia ibitensis Drake, Bull. Mus. Hist. Nat. (Paris) 9: 42. 1903. Syn. nov. *Eugenia parkeri* Baker var. *ibitensis* (Drake) H. Perrier, Mém. Inst. Sci. Madagascar, Sér. B, Biol. Vég. 4(2): 194. 1952. TYPE: Madagascar. Imerina, Mont Ibity, 13 Jan. 1901, *G. Grandidier s.n.* (holotype, P).

This species is widely distributed in humid to montane forest from the Andringitra Massif to Montagne d'Ambre, and from sea level along the eastern coast to the Ibity Massif in central Madagascar. Like *S. emirnense*, *S. parkeri* is here accepted in its broad conception of Perrier de la Bâthie (1953), the confirmation of which requires further field investigations and systematic study.

Syzygium phillyreifolium (Baker) J.-N. Labat & G. E. Schatz, comb. nov. Basionym: *Eugenia phillyreaefolia* Baker, J. Linn. Soc., Bot. 20: 145. 1883. TYPE: Madagascar. Central, sine loc., *R. Baron* 958 (holotype, K; isotype, P).

Eugenia aggregata Baker, J. Linn. Soc., Bot. 22: 475. 1886. Syn. nov. TYPE: Madagascar. Sine loc., *R. Baron* 4917 (lectotype, designated by Perrier de la Bâthie (1952), K; isoelectotype, P).

This species is widely distributed throughout the Central High Plateau from the Andringitra and Isalo Massifs to the Tampoketsa d'Ankazobe, and as far west as the Bongolava region to the west of Tsiroanomandidy.

Syzygium sakalavarum (H. Perrier) J.-N. Labat & G. E. Schatz, comb. nov. Basionym: *Eugenia sakalavarum* H. Perrier (as "*Sakalavarum*"), Mém. Inst. Sci. Madagascar, Sér. B, Biol. Vég. 4(2): 189, pl. 13. 1952. TYPE: Madagascar. Tsarasaotra, Nov. 1897 [as "Ouest. Secteur Ambongo-Boina: bords de tous les cours d'eau du secteur"], *H. Perrier de la Bâthie* 369 (lectotype, designated here, P; isoelectotypes, P, P (Drake)).

This species is widely distributed throughout western Madagascar from Ft. Dauphin to Antsiranana in dry to sub-arid deciduous forest mainly along watercourses up to 1000 m altitude. Among the syntypes originally cited, three of the sheets of *H. Perrier de la Bâthie* 369 at P bear labels with a precise locality and date, two of which also bear type stickers probably affixed by Perrier de la Bâthie himself; one of these latter two is thus here designated as the lectotype. Two other sheets at P also numbered as *H. Perrier de la Bâthie* 369 bear labels without the precise locality, but instead correspond to the more regional designation given for the collection included in the protologue. Moreover, on these more general labels, one sheet with flowers only is ascribed to October, and the other with fruits to January. It is therefore likely that although these two sheets are numbered as *H. Perrier de la Bâthie* 369, they were probably collected at different times and places than the specimen bearing the Type sticker, and are thus not considered here to represent isoelectotypes. Capuron (1966) suggested that *E. sakalavarum* was a synonym of *S. guineense* (Willdenow) DC. Lacking more detailed systematic studies, we prefer to retain Perrier de la Bâthie's concept.

Syzygium sambiranense (H. Perrier) J.-N. Labat & G. E. Schatz, comb. nov. Basionym: *Eugenia sambiranensis* H. Perrier, Mém. Inst. Sci. Madagascar, Sér. B, Biol. Vég. 4(2): 193. 1952. TYPE: Madagascar. Sambirano: vallée du Sambirano, 200–800 m, Dec. 1922, *H. Perrier de la Bâthie* 15137 (holotype, P; isotype, P).

This species is only known from the type specimen.

Syzygium tapiaka (H. Perrier) J.-N. Labat & G. E. Schatz, comb. nov. Basionym: *Eugenia tapiaka* H. Perrier (as "*Tapiaka*"), Mém. Inst. Sci. Madagascar, Sér. B, Biol. Vég. 4(2): 190. 1952. TYPE: Madagascar. Tsaramandroso, Ambato-Boéni, Bevaza (Réserve Naturelle n° 7 [Ankarafantsika]), 13 Oct. 1947, *Réserves Naturelles* 1094-RN (holotype, P; isotypes, K, MO, P).

This species is restricted to the dry deciduous forest on sand at the Ankarafantsika Strict Nature Reserve.

TAXA OF UNCERTAIN SYSTEMATIC POSITION

Eugenia tanalensis Baker, J. Bot. 20: 111. 1882. TYPE: Madagascar. Forests of Tanala, *R. Baron* 295 (holotype, K not found).

Perrier de la Bâthie (1952) initially considered *E. tanalensis* to be a synonym of *E. phillyreaefolia*, stating that “Le type de *E. tanalensis* Baker (*R. Baron* 1477) n’a que des fleurs déformées, parasitées, indéterminables; mais les feuilles intactes sont celles de l’*Eugenia phillyreaefolia*.” However, the type of *E. tanalensis* is *R. Baron* 295; *R. Baron* 1477 must surely have been determined by Baker as *E. tanalensis* at some later date. Moreover, although some branches of the Kew specimen of *R. Baron* 1477 clearly show signs of insect parasite deformation, others do not and can be identified as *Syzygium onivense*, a conclusion Perrier de la Bâthie also shared later (1953) in removing *E. tanalensis* from synonymy under *E. phillyreaefolia* and designating it as an “incompletely known species.” Unfortunately, we have been unable to locate any material of *R. Baron* 295, and it is therefore impossible to clarify the identity and status of *E. tanalensis*.

Three other species described by Perrier de la Bâthie (1952) in *Eugenia* sect. *Syzygium* have subsequently been treated by other authors:

Eugenia cotinifolioides H. Perrier, Mém. Inst. Sci. Madagascar, Sér. B, Biol. Vég. 4(2): 185. 1952. TYPE: Madagascar. Pentes orientales du Marojejy, à l’ouest de la rivière Manantenina, affluent de la Lokoho, vers 1600 m, Dec. 1948, *H. Humbert* 22634 (holotype, P). = **Memecylon cotinifolioides** (H. Perrier) Jacques-Félix, Bull. Mus. Natl. Hist. Nat., sér. B, Adansonia, 7(1): 14. 1985.

Eugenia cupulifera H. Perrier, Mém. Inst. Sci. Madagascar, Sér. B, Biol. Vég. 4(2): 190. 1952. TYPE: Madagascar. Forêt d’Analamazoatra, *Gouv. Général de Madagascar* 3 (holotype, P). = **Carallia brachiata**

(Loureiro) Merrill, Philipp. J. Sci. 15(3): 249. 1919; Capuron, Adansonia, sér. 2(1): 128. 1962.

Eugenia goudotiana H. Perrier, Mém. Inst. Sci. Madagascar, Sér. B, Biol. Vég. 4(2): 193. 1952. TYPE: Madagascar. Sine loc., *J. P. Goudot* 914 (holotype, P). = **Syzygium zeylanicum** (L.) DC., Prodr. 3: 260. 1828; Capuron, Adansonia, sér. 2 (1): 128. 1962.

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